Silicon Oscillators

- Easy to Use
- Programmable for Any Frequency
- Frequencies Programmable “On-the-Fly”
- High Shock, Vibration & Temperature Tolerant
- Low Power
- Small Size
- Fast Start-Up
- Accurate

Solid-State Clocks for General Purpose and Switching Regulator Applications

For systems subject to shock, vibration, acceleration or temperature extremes, Linear Technology’s silicon oscillators offer solid advantages over traditional crystal-based clocks. Using standard silicon fabrication and assembly techniques, you can forget about crystals, timing capacitors and long lead times. With fast start-up, low power consumption, small size and on-the-fly frequency programmability, Linear Technology’s silicon oscillators are suitable for almost any application.

Fixed Frequency (No Trim Components Required)

Device	Output Frequency	Accuracy	Drift	Max Temperature	Supply Current
LTC6905-xxx	20MHz to 133.3MHz	1%	40ppm/°C	–40°C to 125°C	7mA to 10mA at f_{MAX}
LTC6930-xxx	32.768kHz to 8MHz	0.09%	20ppm/°C	–40°C to 125°C	490µA at 8MHz

General Purpose and Low Power Oscillators (Frequency Set with 1 Resistor)

Device	Output Frequency	Accuracy	Drift	Max Temperature	Supply Current
LTC1799	1kHz to 33MHz	1.50%	40ppm/°C	–40°C to 125°C	1mA at 3MHz
LTC6900	1kHz to 20MHz	1.50%	40ppm/°C	–40°C to 125°C	500µA at 3MHz
LTC6905	17MHz to 170MHz	1.40%	20ppm/°C	–55°C to 125°C	8mA at 100MHz
LTC6906	10kHz to 1MHz	0.50%	50ppm/°C	–40°C to 125°C	60µA at 1MHz
LTC6907	40kHz to 4MHz	0.65%	50ppm/°C	–40°C to 125°C	275µA at 4MHz

Serially Programmable Oscillators

Device	Output Frequency	Interface	Accuracy	Max Temperature	Supply Current
LTC6903	1kHz to 68MHz (0.1% Resolution)	SPI	1.10%	–40°C to 125°C	3.6mA at 68MHz
LTC6904		I²C		–55°C to 125°C	

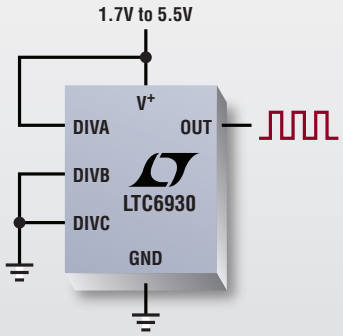
Multiphase Spread Spectrum Oscillators for Switching Regulators

Device	Output Frequency	Outputs	Phase-Shift	Spread Spectrum	Max Temperature
LTC6902	5kHz to 20MHz	4	90°, 120°, 180°	0 to 100% (R-Set)	–40°C to 85°C
LTC6908-1/2	50kHz to 10MHz	2	90°, 180°	0 or ±10% (Fixed)	–40°C to 125°C
LTC6909	12.5kHz to 6.67MHz	8	45° to 225°	0 or ±10% (Fixed)	–40°C to 125°C

LTC6930

99.91% Accurate Silicon Oscillators

- Excellent Frequency Accuracy
  - Max Error: 0.09% (25°C)
  - Max Error: 0.45% (0°C to 70°C)
  - Max Error: 0.65% (–40°C to 85°C)
- 110µs Maximum Start-Up Time
- 1.7V to 5.5V Single Supply Operation
- 490µA Supply Current at 8MHz
- –40°C to 125°C Operation
- 2mm × 3mm DFN or MSOP-8 Package
- Short Lead Times



Select & Set Up Silicon Oscillators Quickly & Easily

OscCalc

Silicon Oscillator Selection & Set-Up Tool

Available at www.linear.com/osccalc

LINEAR TECHNOLOGY

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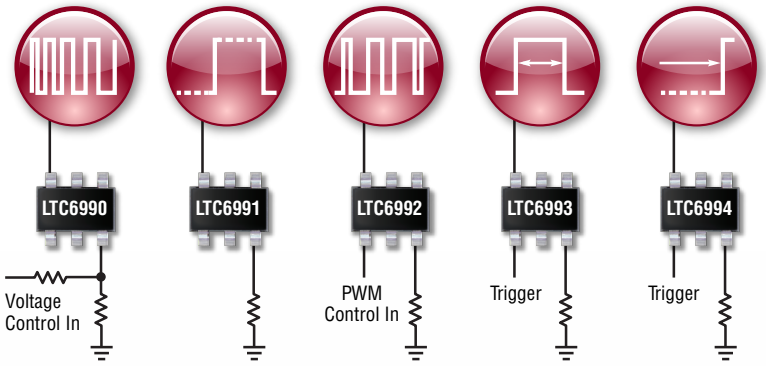
TimerBlox Universal Timing Devices

- Internal Silicon Oscillator
- 2.25V to 5.5V Single Supply
- Programmed with 1 to 3 Resistors
- Fast Start-Up Time
- ±20mA Output Current
- 60µA to 250µA Supply Current
- –40°C to 125°C Operation
- SOT-23 or 2mm × 3mm DFN Package

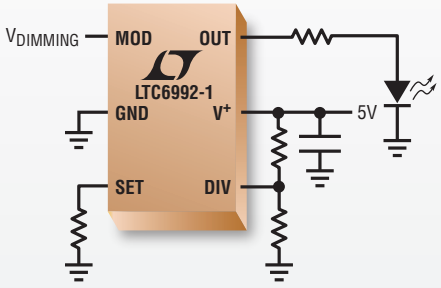


LTC6990 VCO | LTC6991 µHz Clock | LTC6992 PWM | LTC6993 One-Shot | LTC6994 Delay

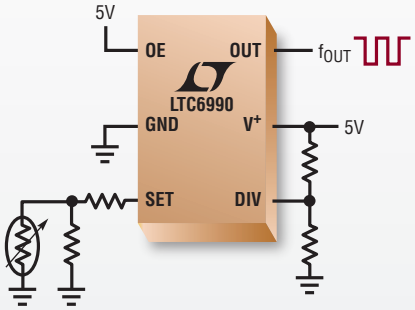
The TimerBlox® family is a complete set of versatile and simple timing circuits that combine an accurate silicon oscillator with precision circuitry and logic. No capacitors, no crystals, no microcontroller and no programming are required. TimerBlox devices are solid state and can be operated under high acceleration, vibration and temperature extremes. They offer higher accuracy, stability and lower power consumption than typical resistor/capacitor-based oscillators. Fully specified over the temperature range of –40°C to 125°C, the TimerBlox parts are suitable for demanding environments, and the small footprint is ideal for space-limited applications.

Typical Circuit Examples

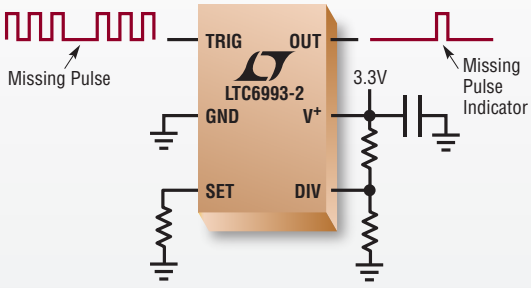
LED Dimming



Temperature to Frequency

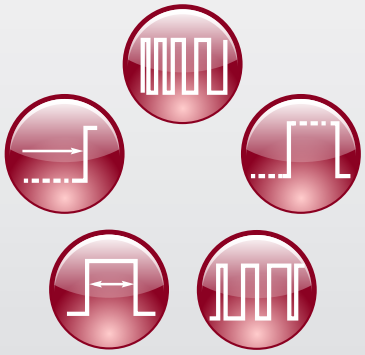


Missing Pulse Detector



12 New Set and Forget Timing Devices			
Part Number	Function	Details	Operating Range
LTC6990	VCO	Configurable Gain and Voltage Range	488Hz to 2MHz
LTC6991	LF Clock	Period from 1ms Up to 9.5 Hours	29µHz to 977Hz
LTC6992-1	PWM	0% to 100% Pulse Width Control	3.8Hz to 1MHz
LTC6992-2		5% to 95% Pulse Width Control	3.8Hz to 1MHz
LTC6992-3		0% to 95% Pulse Width Control	3.8Hz to 1MHz
LTC6992-4		5% to 100% Pulse Width Control	3.8Hz to 1MHz
LTC6993-1	One-Shot	Rising Edge Trigger	1µs to 34s
LTC6993-2		Rising Edge Trigger, Retriggerable	1µs to 34s
LTC6993-3		Falling Edge Trigger	1µs to 34s
LTC6993-4		Falling Edge Trigger, Retriggerable	1µs to 34s
LTC6994-1	Delay	Rising or Falling Edge Trigger	1µs to 34s
LTC6994-2		Rising and Falling Edge Trigger	1µs to 34s

Select & Set Up TimerBlox Parts Quickly & Easily



TimerBlox Designer

TimerBlox Selection and Set-Up Tool

Available at www.linear.com/timerblox

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